POND SEALING OR LINING –BENTONITE TREATMENT DESIGN AND CHECK DATA REQUIREMENTS

The following items must be addressed in the design folder for pond sealing or lining with bentonite. This can be part of the design folder for the pond design. The following pages shall be included:

1) Table of Contents
2) Operation and Maintenance
3) Plan
4) Soils and Foundation Data
5) Construction Specifications
6) Engineering Drawings
7) Erosion and Sediment Control
8) Plan
9) Quality Assurance Plan

Listed below are specific items that are required in the design:

TABLE OF CONTENTS

This organizes the design folder.

OPERATION AND MAINTENANCE PLAN

Is it clearly indicated what precautions are to be taken to protect and avoid damage to the liner during normal operation?

What are the recommended liner repair procedures?

If the liner is to be covered with soil, are there drawdown restrictions to assure slope stability?

Define the procedure for repairing or replacing cover soil.

Explain any monitoring requirements for leak detection systems for waste storage ponds or treatment lagoons.

Describe the emergency action plans for containing and controlling discharge from leak detection systems.

SOILS AND FOUNDATION DATA

Document compliance with Act 187 (1996) before digging?

Written soils description for test pits and site specific comments are included?

Reference pit locations to site contour map.

Soil Mechanics Lab report and recommendations for liner design.

Address slope stability, shear stress between liner materials and soil base, removal of over sized material, rock excavation, drainage, and isolation from open foundation rock and groundwater drainage system as needed.

CONSTRUCTION SPECIFICATIONS

Enclose Specification 521C and other applicable specifications (e.g. 313P, 606).

Include any “additional conditions” or items that are site specific or must be defined to supplement the standard specification. (See instructions for use of Specification 521C.)

Add any special or "by-others" specifications.

ENGINEERING DRAWINGS

GENERAL
On each drawing sheet, the title block should show the operator's name, type of operation, county and the persons involved in drawing and designing the bentonite treated liner.

A bentonite treated liner design requires approval by a person with the appropriate Engineering job approval authority. If the liner is part of a Waste Storage Facility (313) is must be approved by a registered Professional Engineer or an Engineer with NRCS Engineering job approval authority for Waste

Storage Facilities. If a DEP permit is required, additional details may be needed.

Include any standard drawings made by NRCS or designed by others and concurred in by NRCS that are needed, and include them in the drawing index on the cover sheet.

Listed are items that should be included:
PLAN VIEW SHEET(S)
North arrow
Utilities/roads
Bench mark(s)
Scale
Legend
Existing structures
X-section locations
Construction limits
Leak detection system & outlet location
Foundation drainage & outlet locations

SITE CONTOUR SHEET
(Preferably same as Plan View Sheet)
North arrow
Bench mark(s)
Scale
Soils test pit location
Existing structures
Contour lines
Property lines
Water well and spring location(s)
Water courses
Known sinkhole locations
Legend

CROSS-SECTION SHEET(S)
Two sections, minimum
Scale(s)
Soil test pit profile(s)
Loading structure/pipe
Unloading structure/pipe
Slopes
Leak detection system
Drainage configuration
Reference to detail drawings

SEQUENCING STATEMENT WITH:
E&S control
Construction sequence
Spoil and borrow areas
Special considerations
    Special equipment
    Special joints or seams
Vegetative requirements
Fencing and safety features
References to specific standards and drawings
Act 187 (1996) statement

EROSION AND SEDIMENT CONTROL PLAN

See DEP's Erosion and Sediment Pollution Control Program Manual.

QUALITY ASSURANCE PLAN

What specific items need inspection and when?

Who will do the actual inspection?

Is any testing equipment required for the inspection?